



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of

DONG et al.

Serial No. 09/252,828

Filed: February 19, 1999

For: RECOMBINANT BIOLOGICALLY ACTIVE HUMAN ZONA PELLUCIDA  
PROTEIN 3 (hZP3) TO TEST MALE FERTILITY

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

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Group Art Unit: 1653

Examiner: Suzanne Mayer

**RESPONSE TO EXAMINER'S REASONS FOR ALLOWANCE**

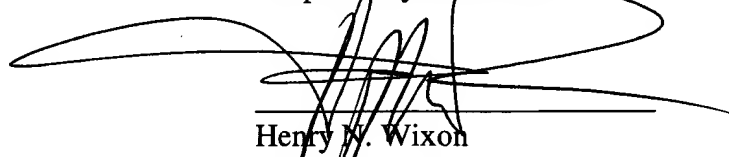
Applicant appreciates the Examiner's indication of the allowance of the claims. With regard to the Statement of Reasons for Allowance, Applicant submits the following comments for the record in the application:

The Examiner states that "[t]he invention is novel and unobvious because applicant have discovered that using conservative substitutions in [SEQ ID NO: 2], to amino acids which are evolutionarily non-conserved in nature (when a sequence alignment is performed for several zona pellucida's) significantly enhances binding of the sperm to oocyte." Applicant respectfully submits that neither the Applicant's invention nor the allowed claims are necessarily limited as characterized in the Examiner's Statement. For example, the claimed invention is directed to embodiments that include, *inter alia*, a recombinantly produced polypeptide or glycopolypeptide, expressed by a human ovarian cell line, consisting essentially of the amino acid sequence of SEQ

ID NO: 2, wherein said polypeptide or glycopolypeptide binds human spermatozoa. SEQ ID NO: 2 corresponds to amino acid residues 308 to 348 of the human ZP3 protein. Additional embodiments of the claimed invention are directed to a recombinantly produced polypeptide or glycopolypeptide, expressed by a human ovarian cell line, consisting essentially of the amino acid sequence of SEQ ID NO: 2, or a conservatively substituted amino acid sequence thereof, said conservative substitutions being at least one of amino acid residue numbers 3, 8, 13, 16, 17, 19, 21, 22, 23, 25, 27, 28, 30, 32, 33, 34, 35, 38, and 39 according to SEQ ID NO: 2, wherein said polypeptide binds human spermatozoa at least ten times as strong as an equivalent molar amount of mouse ZP3. Further claimed embodiments recite specific examples of amino acid substitutions that maintain the unique human-species specific glycosylation of the polypeptides and glycopolypeptides of the invention.

No additional fees are believed to be due in connection with this Response to Examiner's Reasons for Allowance. However, please charge any underpayments or credit any overpayments to Deposit Account No. 08-0219.

Respectfully submitted,

A large, stylized handwritten signature in black ink, appearing to read 'H. Wixon', is written over a horizontal line.

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Date: 15 DECEMBER 2005